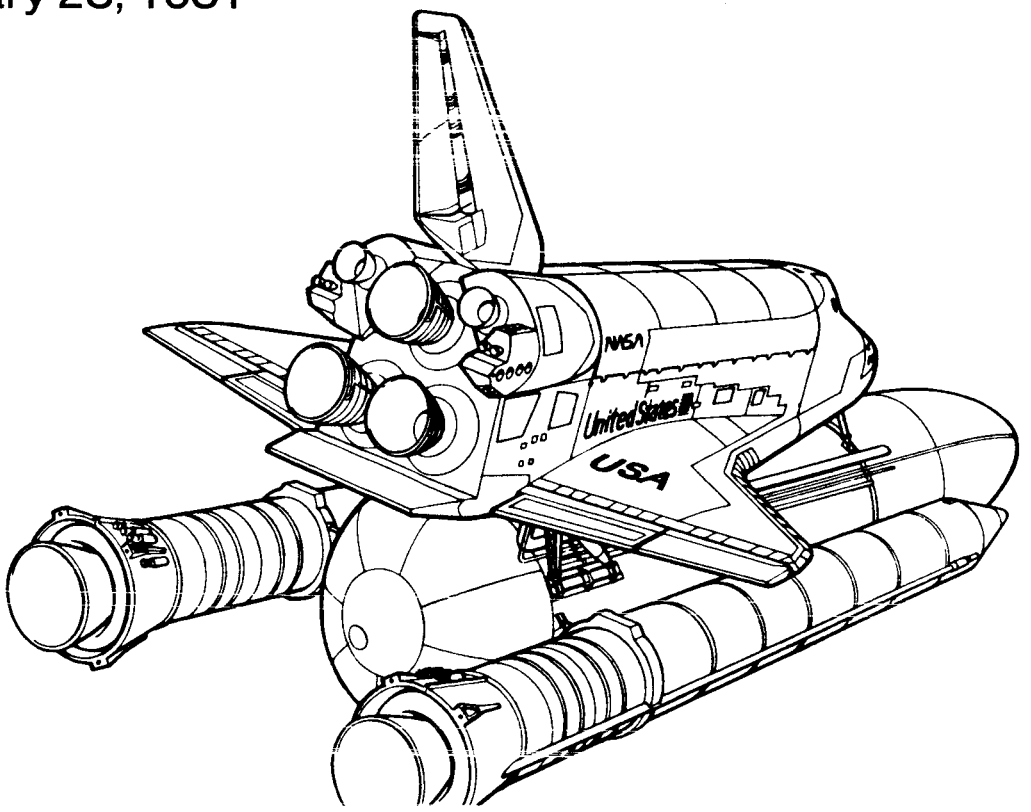
National Aeronautics and
Space Administration

Space Transportation System Briefing Series **Number 8**

Space Shuttle Prime Crew Press Briefing

Johnson Space Center

January 23, 1981



National Aeronautics and Space Administration

Johnson Space Center

Houston, Texas

"Space Shuttle Prime Crew Press Briefing"

January 23, 1981

Participants:

John W. Young
Commander, STS-1

Robert L. Crippen
Pilot, STS-1

John McLeaish
Chief, Public Information Office

MR. McLEAISH: Okay, our conference this morning is with the crew for the first Shuttle flight. On my immediate right is Bob Crippen and to his immediate right is John Young. I guess I'll ask John and Bob to make a brief opening statement and then we'll go to questions, and let me mention, identify yourself, if you would and raise your hand first.

MR. YOUNG: The opening statement is as follows: we're very pleased with the performance of the recently - completed total mission simulation -- integrated simulation -- that was conducted here the last three days at the Johnson Space Center. We had the Mission Control Center integrated with the Shuttle Mission Simulator and Bob and I were in the Shuttle Mission Simulator a total of about 42 and a half hours doing a two-and-a-half day mission which is normally a 54 and a half duration and we spent 11 and a half hours of that time in the pressure suit.

We got about 40 problems during that period of time, some of which had to be worked over a long time, that directly affected the crew. There were additional problems put in there that affected Mission Control that they solved in real time. I think that experience -- we may not have those kind of problems on the flight -- but the ability to solve those kind of problems in real time, to think about what's going on and to solve those kind of problems, is absolutely the thing that makes spaceflight such a great... such a great thing in this country. Because our folks are trained to do it. They can do it, they do a terrific job at it and I think it's a really good feature.

I'm really pleased and mighty proud to be working with those folks at Mission Control because they are doing a terrific job right now. In fact, they've had more time, I think, you probably already know, they've had more time in integrated simulations than we had in the entire Gemini program, right now and we haven't launched yet.

MR. CRIPPEN: I guess I'd like to state for those of you who aren't familiar with it, on the first flight of the Columbia that we'll be doing, it is a test flight and that's basically what the entire mission consists of -- making sure that we can get up on orbit properly, don't have any problems, that we can make sure that all the systems in the vehicle function as they should, and we'll go through a systematic checkout of basically everything that's aboard and make sure we can fly entry like we plan. If we can just get up and get down -- even if we had to do it all in one day -- that would be... satisfy like 95 percent of the objectives of the flight.

We will, hopefully, be staying up like 54 hours, as John mentioned, but we have the capability to come down on the first day, second day or third day.

The vehicle in its final stages of preparation down at the Cape is looking real good. They're going through the test flow a

lot smoother than a lot of us thought they would be able to do. Once we move the vehicle out of the Orbiter Processing Facility where we have the final tile test going on, or tile manufacturing, everything has really progressed nicely. The vehicle is looking super and John and I are looking forward to a smooth flight. So I guess with that we'll go ahead and open it up for questions.

MR. McLEAISH: Craig Covault, Aviation Week.

MR. COVAULT: You guys, I get calls every week from people who have a rather narrow view of risk, which is always in the eye of the beholder, and they're all convinced your TPS (Thermal Protection System) is going to fall off, but they don't have a very good perception of the challenges of launch and entry per se, so it might be useful for you guys to put in perspective the challenges of launch and entry and have your perception of risk on FMOF (first manned orbital flight).

MR. YOUNG: I don't... it's no way that Bob and I have enough experience to realistically quantify risk associated with this vehicle.

It's gone through a multitude of tests. The tile system is designed to be, in most areas, four or five times stronger than it needs to be. The engines have come through a rigorous test and they've had a lot of problems and they've fixed them. The last engine test was successful, and the certification tests of the engine have been completely successful.

They haven't had a... the people at Marshall like to talk about how many seconds they've run on engines, but what we like to talk about is the test going end-to-end because the engine shuts down while you're... while you want it to perform, then you're into a thing like an RTLS (return-to-launch-site) or a once-around or something like that, so the engine certification test has come through without a hitch on the last...

There is many other problems that we've had in the Space Shuttle program that have been solved that don't get the headlines that everybody reads about. That's the nature of our business -- finding problems, fixing them and solving them. There's something like 6,000, I think... no 3,600 tests that have been run on this test and they're... on this vehicle... and they're still being run right now, you know, and they won't be completed until the last week in February, maybe the first week in March. There are more than 9,000 analyses which are very sophisticated things these days with computers and stuff. They are being run on this vehicle and they're being run right up to the last moment. If there's a vehicle that we can have confidence in, I believe it's this vehicle, so it's... yeah, we can't quantify the risks though. I wouldn't even try. I'm not smart enough to do it.

MR. McLEAISH: Questions? Mr. Covault.

MR. COVAULT: Yeah, Covault again. Yesterday in the entry, just out of blackout, Crip, you came up and said you thought you might have damage on the flap and elevons and I never stuck around for the debrief so I don't know what you thought got you into that kind of problem.

MR. CRIPPEN: We had... the simulation folks had put in a change in the pitching moment of the airplane, such that it required during early entry that all of our control surfaces, the elevons and the body flap, go full down to maintain our attitude and they stayed for a long period of time, just about up until we'd slowed down to like 20,000 feet per second, roughly, and that is where we were starting to get into the high temp regions and because of that, the surfaces were exposed to a higher temperature. And they possibly could incur some damage if they did that. It turned out that, we looked at the results of the simulation and they got almost up to 2,600 degrees Fahrenheit, which is like what we refer to as a 3 Sigma worse case and they may have had to replace some of the tiles back there in that condition, but the surfaces would have been in good shape.

MR. McLEAISH: Jules Bergman.

MR. BERGMAN: John and Bob, are you satisfied with the margin of safety in this vehicle? And, John, can you look ahead since you've flown both Gemini and Apollo, and give us a comparison?

MR. YOUNG: Yes, but it's comparing apples and oranges. The vehicle has higher safety margins than you get in any airliner. It's a 1.4 factor of safety and in many cases, when they go to ultimate strength, it amounts to a lot higher than that and that's certainly a lot of safety factor. Like I say, in certain areas, like the tiles, they're four or five times stronger than they need to be.

MR. BERGMAN: How do you arrive at the one...

MR. YOUNG: That's a fac... I'm sorry. I didn't mean to interrupt. Go ahead. You take your... how do you arrive at 1.4? You take your worst case design conditions for an ascent, for example, it's 819 pounds per square foot, and multiply that by 1.4. Then everything breaks that. You take your two and a half Gs that the airplane is designed to and you multiply that by 1.4, that kind of stuff.

MR. BERGMAN: But when I get aboard an airliner that's flown X-teen hundred times before, I don't have to worry about ejection seats that are not usable at certain altitudes from this to that. Do you still think it's 1.4 times safer? I mean your quan... that's a mathematical engineering quantification, John.

MR. YOUNG: That's all I can talk in, Jules... (laughter)

MR. BERGMAN: ... in terms people will understand. How do you quantify or non-quantify the risk?

MR. YOUNG: I can't quantify it. I'm not smart enough to do that. We haven't done it yet. We obviously think it's safe or we wouldn't be doing it.

MR. CRIPPEN: That was basically the answer to Craig's question awhile ago, also. It's impossible to quantify it from the standpoint of risk.

MR. YOUNG: But like every spacecraft that we've flown so far, that we flew unmanned, we could have flown manned, and done it successfully.

MR. BERGMAN: Would you like to have seen an unmannned flight of this spacecraft first?

MR. YOUNG: No. Definitely not.

MR. BERGMAN: Why?

MR. YOUNG: Because the vehicle is not... it would cost you another... it would cost you half a... between $250 and $500 million to go unmanned on this vehicle and slip the program at least a year.

MR. McLEAISH: Yeah, let's go to CBS now.

MR. YOUNG: You don't want to do that.

MR. CRAWFORD: Steve Crawford, CBS News. Have you... a few moments ago, Bob Crippen said that 95 percent of this mission would be accomplished if you got up and got down. What else are you going to be doing up there and what are the critical tests that you're going to perform? What's the most critical part aside from getting up and getting down?

MR. CRIPPEN: ...probably... we're basically going to go through and operate each of the systems, as I said earlier. One of the most significant things that we'll be doing, essentially the first time we come over States after launch, is opening up our payload bay doors. The payload bay doors -- there are two of them that open to expose the cargo bay of the orbiter, which is 60 feet long and 15 feet wide and those doors have a very complicated set of latches on them and we're going to make sure that they do unlatch and function properly and that they'll be able to close down properly once we do get them open. We'll also be testing out the environmental control system, the cooling systems on board the spacecraft. We'll even be doing mundane things like checking out the potty that we've got on board, so we'll be going through those kinds of things.

MR. CRAWFORD: Do you... what happens if you have difficulty getting those cargo doors closed? What kind of fail-safe mechanisms do you have to make sure you can get them closed once you get them opened?

MR. CRIPPEN: There's quite a bit of... basically the doors are redundant from motor drives and latches and so forth, and we do have work-arounds that we can do like changing out electronic equipment inside, even down to the point of taking pins and wires and sticking them in connectors to back up redundancy and if all that fails, we have a capability to don pressure suits, go outside and use lines -- winches, if you will -- and some bolt-on or hook-on kind of latches to latch the doors, as a backup means of getting them closed.

MS. HUTCHINSON: Helen Hutchinson from Canadian Television. This isn't a philosophical question. I'd like to ask it of both of... it is a philosophical question, because now we're entering a whole new era of space with the Shuttle because it is conceivable that people will be working in space, living in space, indeed, colonizing space, which has been a dream for so long. Now with women in the program that dream is possibly becoming more of a reality and I'd like you to give me your feelings and your thoughts on that subject, if you could.

MR. YOUNG: Thoughts on women in the space program?

MS. HUTCHINSON: No, the whole new era that we're entering.

MR. YOUNG: Oh.

MS. HUTCHINSON: One of a possible colonization.

MR. YOUNG: Okay. I think it's a wonderful thing that we're doing here. Routine access to space is really important to developing science and technology in space and to develop the kinds of things that we hope will lead to a whole era such as you speak of, colonization in space.

With this vehicle, which has a tremendous capability, which we need terribly to have in the United States... it is right now, the vehicle is about -- in my way of thinking -- about 10 years ahead of what any other country in the world can do, as far as I know right now. And it will enable us to do in space in the next five or 10 years, what'll take us 20 or to 30 years to do without this vehicle.

The country really needs it bad, both from a standpoint of developing high technology and discovering new things in science and tech... in science in space -- for example, with the Space Telescope -- and from a defensive standpoint. The country needs this vehicle very badly. It's going to provide a tremendous capability. And Bob and I are really looking forward to getting it operational as soon as practical.

We think that one of these days the United States ought to have a permanently orbiting manned space station up there and with this vehicle we'll be able to do it for one-tenth of the cost to do it without it. I guess the Russians think they ought to do it too because they're doing it.

MR. CRIPPEN: John is much better with the philosophical questions than I am, but it's important not only to the United States, but to the entire free world, in my opinion, because the capability to utilize space, most of the people don't realize how much that their daily lives are influenced by satellites today, primarily in the communications area. We've also got Earth resources that are important all over the world and those kinds of capabilities we'll be able to conduct much easier and in greater number, once we've got an easy access to space. And, as John said, we really believe that we need a permanent manned orbiting space station and the Shuttle's going to help us get one.

MR. McLEAISH: Howard Benedict.

MR. BENEDICT: I was going to ask if there is any problem with the tiles, are you prepared to go EVA on this mission to make some corrections out there?

MR. YOUNG: We have no equipment to go EVA to fix tiles on this mission. It's being developed, but we won't have it.

MR. CRIPPEN: Personally, I think that NASA took the right tack in that they're going to make darn sure that the tiles stay on so we don't have to go out and repair them. And I feel comfortable flying in the condition we're in now.

MR. McLEAISH: Roy Neal, NBC.

MR. NEAL: John and Bob, can we talk about launch date now for just a bit? What are the things that you'll be looking for? What are the things that could slow down, cause delays in the launch operation on that day? What do you think your thoughts might be above and beyond the engineering?

MR. YOUNG: Well, when you get in the first day launch count a lot of things can slow you down or delay the launch. We've got a six-hour launch window that we can... When we get in the vehicle, liftoff is scheduled for 6:23 a.m. Cape time... 7:23 a.m. Cape time, and we're... and we can stand quite a bit of launch delay.

There are all kinds of built-in holds built in the launch count right now to enable the people at the Kennedy Space Center to solve problems in real time.

We have some new things that could stop launches with this vehicle, of course. We have to have pretty good weather at our... end-of-mission forecast weather -- at our end-of-mission landing

sites. We have to have good weather at the Kennedy Space Center to be able to launch in the first place. That's a thing that's never really stopped any... never stopped any Apollo missions, for example, because we always had good weather in certain areas, but it could stop... it could at least put our launch in a hold for a little while. And there are all kinds of mechanical problems that you can find to solve in real time, but just what they are, I couldn't tell you. Because if I could think of what they were, we wouldn't have them.

MR. McLEAISH: John Wilford, New York Times.

MR. WILFORD: John, you have flown Gemini and Apollo and now you've spent hundreds of hours in the simulator for the Shuttle. Could you describe some of the differences in the handling characteristics of a Shuttle, something that's an airplane and a spacecraft, from your old days of flying.

MR. YOUNG: Apollo and the Gemini had very low lift-to-drag ratios. It's kind of like flying a brick. Although you can modulate your entry a little, you really were pretty much going to land where you started out. If you hadn't done the right thing in the first minute and a half of your entry, you were going to land somewhere different than you planned to.

The Space Shuttle really has a lot of capability - 1,100 miles cross range, maybe a couple of thousand down range -- it's really got a capability and it'll go anywhere you want it to. From that standpoint, it's a lot different.

It certainly flies different. It flies like an airplane -- 40 degrees angle of attack, banking back and forth across the ground track from Mach 24 down to Mach 13 and starting a slow transition into standard angle of attack right around 10 degrees at Mach 2, where the tail serv... the tail rudder starts getting into the wind, you know, where you can use that to fly it like a conventional airplane pretty much from there on down. It's a totally different flying machine. Even though it's a glider, it has a lot of range potential. It really has quite a capability. It's a different... it's very different from flying a Gemini or Apollo.

MR. McLEAISH: Sylvan Rodriquez, Channel 13.

MR. RODRIQUEZ: Going back to the tiles. Is not a tile repair kit being designed for future flights and what are the problems with carrying that kit along on this flight?

MR. YOUNG: Well the problem is... I don't know what the problems are in carrying it along in this flight. It's not ready. It's about as simple as that. But there's also a weight penalty associated with carrying a tile repair kit, probably over 1,000 pounds of weight penalty, and I don't think you want to look at that change this close to launch or first mission.

MR. McLEAISH: Al Rossiter.

MR. ROSSITER: In the final weeks before flight do you plan any special T-38 flights or zero-G profiles, or that type of thing, to get acclimated? As was done in Apollo?

MR. YOUNG: Well, we... we fly T-38s on... basically everywhere we go with respect to what I think you're referring to in Apollo.
The guys used to go out and do a little acrobatics and that kind of stuff, and we'll probably do that. We've got the flights available to us.

MR. McLEAISH: John Ginter

MR. GUNNER: John Ginter, KHOU, Houston. Gentlemen, aside from questions of personal safety, how concerned are you about the future of the funding, especially for the manned program itself? How much of that future is based on a successful flight here, do you think?

MR. YOUNG: I think the space program will keep going whether the flight is completely successful or not, to tell you the truth. I don't... that's not the way things work. It really ... I'd like to say it wouldn't, but that would be mighty egotistical to say that this one flight is any great shakes in terms of carrying on a space program, because people around the country realize how important having a good, viable manned space program is to this nation.

MR. PARRISH: Alton Parrish, Metro News, Houston. What if the weather is bad when you're going to make your landing at Edwards Air Force Base, even if the forcast is clear, what problems does the weather present?

MR. YOUNG: Well, I'm glad you asked that. We would opt for going to White Sands Missile Range if the weather was bad at Edwards. We have a big strip out there that's almost as big as the Edwards complex and a dry lake bed that's made out of soft rock, which is as hard as this floor.

MR. PARRISH: What are the problems with weather that the Shuttle that...

MR. YOUNG: Well, one of these days we'll have the capability to land at zero-zero, but not on the first flight.

MR. CRIPPEN: It's only a question of visibility for the pilot and making sure you're where you plan to be at the right moment and for the landing. In truth, if everything worked perfectly, we've got enough capability on board the vehicle to fly us down a low ceiling right now and land the vehicle. However, that's not the way you want to do a first test flight and it's a question of a test flight only, you'd like everything going for

you, and that's why we're asking for clear weather and light winds.

MR. McLEAISH: Okay, Howard Benedict, AP.

MR. BENEDICT: Under what circumstances would you land at one of those other contingency sites -- Spain, Hawaii or Okinawa?

MR. YOUNG: It would really be a bad situation, Howard. It would be a kind of situation where you couldn't wait on orbit to get to the final end-of-mission... to any end-of-mission site in the continental United States.

MR. CRIPPEN: The kind of malfunctions that we have today would be something like loss of cabin pressure, basically loss of all of our cooling capability on orbit or something like that... or losing out all of your capability to deorbit like your propellant for your rockets that slow you down to come back in. It would have to be something pretty catastrophic.

MR. McLEAISH: Alan Mason, Dallas Morning News.

MR. MASON: Gentlemen, is the Space Shuttle going to be able to generate the same kind of public excitement and confidence that the Apollo program did?

MR. YOUNG: You ought to come to the launch. (laughter)

MR. CRIPPEN: I personally think that one of the things we're doing with the Shuttle is trying to make, what John referred to earlier, going into space routine. And making things routine is contrary to generating excitement. So I think that the two are in direct conflict. I think there will be quite a bit of excitement associated with the first few flights, but we hope to make it routine enough where there's not any excitement.

MR. McLEAISH: Let's take a couple more questions from Houston and then we'll switch to NASA Headquarters in Washington for questions. The gentleman back in the back there.

MR. KRAKES: Craig Krakes, KPRC Radio. How much time will you all spend chewing on the data you get from this flight before you'll be ready to send up another?

MR. YOUNG: Next flight is scheduled for August of 1981 and the program is designed such that it will chew the data enough to support the next flight. And a lot of engineers are working on that post-flight data analysis right now. They have milestones set up so that they can do it at a systematic fashion and make the August launch date.

MR. McLEAISH: Roy Neal.

MR. NEAL: Hey, John. After this flight are you going to

give up and stop flying? You going to leave it for those younger folk?

MR. YOUNG: Space flight is an old man's business. (laughter) And it's a lot of fun. I really enjoy it. And so does Bob. And so do 80 more people in the program... in the astronaut program.

MR. McLEAISH: Okay, let's go to Washington and see if there's any questions from NASA Headquarters.

MR. HINES: This is Bill Hines from the Chicago Sun-Times for John Young. I think there was one open item left over from Apollo 16. I wonder if you have it licked yet, namely the orange juice problem. (laughter)

MR. YOUNG: Yes, we have it taken care of.

MR. HINES: Did you get that transmission, John.

MR. YOUNG: We have whipped the orange juice problem.

MR. McLEAISH: Any other questions from Washington? (laughter) Are they receiving us? Are there any further questions? Why don't we switch to Kennedy Space Center, if we have any better success.

KSC: This is Kennedy Space Center. Stand by one minute please.

MR. SCHOKNECHT: This is Ken Schoknecht from WFTV in Orlando. It seems like every time either of you gentlemen hold a press conference, you're asked if your're getting nervous or if you're worried about the risk. How often do you get asked? Are you getting sick of the questions and does it affect your confidence or shake you up?

MR. CRIPPEN: You know, you're right. We get asked every time we have a press conference and, yes, I'm getting sick of the question. (laughter) And it doesn't shake my confidence.

MR. YOUNG: I have to think of a new answer every time. (laughter) That's the problem. It's tough to do.

MR. FIORUCCI: Dan Fiorucci, WNDB, Daytona. I imagine you've been keeping track of the rehearsed fuel operation that's been going on here with the Shuttle and has it answered any questions for you, any concerns with this icing problem, things like that? What do you know about it and what does it tell you at this point?

MR. CRIPPEN: Well, we have a lot of confidence in the people at Kennedy Space Center. We know that the fueling operation is going on and there has been some concern about ice build-

up and they're checking it out and, to the best of my knowledge, everything looks like it's been going well and we don't see any problems there. We kind of leave worrying about those kinds of things to the people that know a lot about it.

MR. YOUNG: But to tell you the truth, Bob and I have been in the simulator for the last three days and we haven't even read a newspaper. And we're just mighty pleased, for example, that the hostages are back and okay. That's about all we... we don't know anything about tanking down at the Cape right now.

MR. McLEAISH: Any other questions from Kennedy?

MS. BARNETT: I'm Amanda Barnett with WMFE Public Radio in Orlando. What type of activities do you have lined up between now and the launch?

MR. CRIPPEN: (laughter) Well, between now and the launch, John and I are staying pretty busy with training exercises. It always seems no matter how long you've been training, the closer you get to launch, people keep thinking of these things they've got to train you to do or tell you to do or so, we have, as John just referred to, been in our Shuttle mission simulator for the last three days and we'll be continuing with those kinds of activities. Also, we have a Shuttle training aircraft, which is a modified Gulfstream-2 that we're flying at least once a week out at Edwards Air Force Base, at the White Sands Missile Range on Northrop Strip and at the Kennedy Space Center. And we'll be doing that quite a bit. We also have a few more exercises in trying out for contingencies like this EVA for the doors and working in our water emerging facility, a fancy name for a swimming pool, that we have here, and in general, we're staying pretty busy.

MR. YOUNG: And we're supporting a lot of tests down at the Cape.

MR. CRIPPEN: Absolutely.

MR. McLEAISH: Any other questions from Kennedy?

KSC: Don't believe so. That's all. That's all from Kennedy.

MR. McLEAISH: Okay, let's... I understand Marshall is not on the loop for asking questions, for listening only. And the same, I understand, is true at Dryden. So, why don't we switch back to Houston. Howard Benedict.

MR. BENEDICT: I just want... at what point will you go down to the Cape before the launch? How many days before?

MR. YOUNG: We go down to the Cape two days before the launch. The day before the launch, we'll be flying the Shuttle

training airplane down there in a profile similar to the return-to-landing-site abort at... on the Shuttle strip and we'll also have a briefing on the systems and weather and we'll be on our flight data file for the last time. And we'll be flying T-38s down there some.

MR. McLEAISH: Dave Crawford

MR. CRAWFORD: You've been in a number... on a number of space flights, you've gone through a lot of training in simulation prior to those flights. How much difference is there really between simulation on a mission that you've never flown before and what you actually experience when you're out in space and when you're making your reentry?

MR. YOUNG: If we've done it right, zero gravity is going to be the only difference. You do have physiological cues. For example, when a thruster fires in space, you feel it and here you're watching a couple of needles move. That's... you get a lot more cues. You hear things like machinery running that tells you everything's okay. But zero gravity is the main difference. And zero gravity makes everything so much easier than everything we've been doing. In this three-day flight that we just completed, in one G it's pretty tough because of moving around in that pressure suit and all that up-and-down stairs and everything is... that's not too easy, but in zero gravity you just float around. That's much easier and you can do everything faster, and I feel that if we can do this mission that we just completed with all those failures, and we complete a nominal mission end-to-end, there's about 160 flight test objectives on the Space Shuttle to get it through Orbital Flight Test and we're looking at about 130 on this first mission. If we can do that... if we completed all that on this simulation, then I think we're a good ways along toward doing it in zero gravity.

QUESTION: (inaudible)

MR. YOUNG: For the first flight, we're looking at 10 knots. The vehicle is designed to stand 20.

MR. McLEAISH: Let's wait for the mike if you would. Right behind you.

MR. ROLFE: Edgar Rolfe, French magazine VSD. Could you describe for us the first minutes in the simulator, I mean the launch. What did you feel? What did you hear? What did you see?

MR. CRIPPEN: All right. You're much better at describing the launches.

MR. YOUNG: Launch in this vehicle is going to be very interesting because you've these liquid hydrogen/oxygen engines that are ignited about 3 1/2 seconds before liftoff -- or it used to be 3 1/2 seconds -- and they come up to 90 percent thrust and

they're given a thrust-okay and after they light -- the vehicle is sitting here just like this -- and they'll rock forward about 19 inches and then they'll rock back and that takes about 3 or 4 seconds and then they light off the solid rocket motors. Well, they do that and they fire the hold-down bolts and everything else, and then the vehicle is going to leave the pad very abruptly because the total thrust of the vehicle on the pad is 7 million pounds about, and the weight of the vehicle is about 4 1/2, so you've got to get an instant half-G. It's going to feel like a hydraulic cat shot. I don't... there's probably not many people living that ever experienced one of those, but that's just... it is a lot of fun. It's going to go straight up and clear the tower in about 5 seconds nominally and that is really moving on. You're going to see a lot more out of this vehicle than you can see... than you've ever seen out of any other spacecraft. You can see from horizon to horizon looking out the windows. And when you do the roll program you look out and you can see the VAB, see everybody standing around watching. The solid rocket motors make a lot of smoke. The launch vibration is... analysis showed... it was about a half a G -- plus or minus half a G -- on top of that 1 1/2 Gs. That's six cycles per second. And the first 2 seconds stands for 1 1/2 amplitude. I don't know if that means anything to you but it means its going to go up like that.

MR. McLEAISH: Okay, let's take one more question from Houston. I stand in error. I do understand that Dryden does have questions.

MR. CHRISTIAN: Gentlemen, John Christian, KSAT San Antonio. An opinionated question... Do you think a successful launch will put us ahead of or get us even with the Russian space program?

MR. CRIPPEN: What the Soviets have been doing with their Salyut and the Soyuz is proving they can get up and stay on orbit a long period of time and they have obviously exceeded the times that we have spent in space. And I think they've got a good program and they've proven they're in the manned space business to stay.

We, on the other hand, are pushing technology with the Space Shuttle, far advanced of what they're building right now -- or at least what we know that they're building -- and it's a different kind of operation. It is going to make carrying up large objects a lot easier and it's a different kind of thing than what they're doing. As far as putting us ahead, or who's ahead or who's behind, I don't think that I could even comment on that as to what you call ahead. It's a different kind of a thing but it's really going to give us a fantastic capability when we get it flying.

MR. McLEAISH: Okay, let's switch to Dryden now and then we'll close out at Houston. Do we have questions from Dryden? No questions? Okay, back in Houston.

DFRC: Dryden does have questions. One moment, please. Can you read us now?

MR. McLEAISH: Yes. Go ahead.

MR. CRIPPEN: We copy you.

MR. YOUNG: Maybe.

MR. PERRY: Frank Perry, Long Beach Press Telegram. With the success of the Shuttle program and everything that will eventually lead to, do either of you envision the (inaudible)...

MR. CRIPPEN: It cut out. You said envision the what?

MR. PERRY: The ultimate creation of a new and separate military service, a new branch.

MR. YOUNG: What would you call it?

MR. PERRY: I don't know. I was going to ask you that next.

MR. YOUNG: I can't imagine anybody doing that for so many reasons that don't have anything to do with the space program. It's just not the nature of the country to be changing those kind of things these days.

MR. PERRY: Thank you.

MR. McLEAISH: Any other questions from Dryden?

MR. BROOKS: John Brooks, KFWB News. You've described what it looks like when you take off from Kennedy. Can you give us the reverse as you come to land here at Edwards?

MR. YOUNG: Well, we come across the coast line doing Mach 6 at about 120,000 feet. Yeah, the ground track... is come across the coast line north of Monterey Bay up there, and sort of heading south it passes Bakersfield and at Mach 4 you're abeam, Lake Isabella. At Mach, 3 you're abeam of the runway at Mojave at about 88,000 feet, and Mach 1, you're right over Edwards, really going downwind at a little better than 50,000 feet. You hit the heading alignment circle into runway 23 on the north lake bed... that the 180 position at 32,000 feet... you're at the 90 at 23,000... you're at final -- high final -- at 12,000 feet... doing about 275 knots and you accelerate up to 290 knots in a 20-degree glide. You do the pull-out at about 1,750 feet above the lake bed at 290 knots, and as you decelerate, you try to touch down at 185 knots, and that depends on weight. If you're a little heavier, you might land a little faster, maybe 3 or 4 knots, plus or minus some... and try to land soft.

MR. CRIPPEN: John does it soft every time.

MR. McLEAISH: Any other questions from Dryden?

MR. GLEASON: Gene Gleason, KABC Television in Los Angeles. What will the critical points of this flight be? Why will they be critical and will there be any differences in the critical points between a Shuttle flight and, say, an Apollo or Gemini?

MR. YOUNG: You take that. You can handle that one.

MR. CRIPPEN: Oh, yes. Well, going up and coming down, again, the dynamic phases of flight are the most critical, and that was probably what was most critical in every manned space flight we've had.

Certainly liftoff itself is going to be very important to us and throughout ascent because we need to keep our main engines running so that we don't have to turn around and come back and land at the Kennedy Space Center because the return-to-landing-site maneuver is a pretty dynamic sort of thing that we prefer not to have to do on the first flight. Coming back in on entry, going through regions with the winged vehicle that have never been done before.-- that's going to be pretty critical also. Usually, once you get on orbit and you've got things that are not happening so fast, you can just about handle any kind of a problem. So, going up and coming down is it.

MR. YOUNG: And on orbit.

MR. CRIPPEN: John says on orbit, too.

MR. GONZALES: Ralph Gonzales from KOTV in Lancaster. How dependent will you be on recovery crews on landing at Edwards?

MR. CRIPPEN: I'm sorry. Would you state the question again, please?

MR. GONZALES: How dependent will you be on the recovery crews upon landing at Edwards?

MR. YOUNG: Hopefully, not... in terms of crew safety or anything, we won't be dependent on them at all. We are depending on them to safe the vehicle -- to put cooling air to the vehicle so that we can turn off its systems in a hurry and that's a procedure we just practiced yesterday in a simulator, and the object is, the recovery crews hook up the cooling air and then we shut everything down so that temperature soakback, that you experience from launch, doesn't damage any of the electronics or any of the other systems in there. It's a pretty important thing that they're doing.

MR. McLEAISH: All right, let's take one more question from Dryden and then switch back to Houston.

MR. ELIAS: Alan Elias, KAVL. This all seems to be such

second nature to you by now. How much of the flight, if any, will be judgment on your part?

MR. YOUNG: There's always a general prudential rule in there that says in the absence of the ground, that we're responsible for the safe conduct of the mission, and whatever judgment it takes to do that, that's what they pay us for. And don't ask me when that will occur. If everything is nominal, it won't require any real time judgments like that.

MR. McLEAISH: Okay, Craig Covault.

MR. COVAULT: One we're getting tired of and that's schedule questions. The schedule at KSC is going to be a little more perceptable now that you are in the cryo. George Page, awhile back, said he thought five to six weeks beyond the March target. Do you agree with George? That's if no problems... that's just based on past experience with Saturn and the LPS situation... things like that. Do you agree with George?

MR. YOUNG: You sure George said that? (laughter)

MR. COVAULT: You know I'm sure, John.

MR. McLEAISH: Let's do a question and answer here.

MR. YOUNG: I think it's mighty tough to get a vehicle down there. Using the vehicle to check out the launch processing system without... with being able to accomplish problems in real time and work three shifts a day, 24 hours a day, maybe they're down two or three days right now, but that's all they're down. I think that is absolutely remarkable and if they keep it up and don't have any problems. George must have been thinking maybe they'd have to roll back or something. You know that's always a possibility if you run into a problem with... there are many situations you can get into with equipment changeouts where some of you have to roll back and demate. And that takes you a big hunk of time.

MR. McLEAISH: Dave Croft...

MR. YOUNG: ... if you don't run into any of them, I think... they're really doing super.

MR. CROFT: There, of course, could be additional delays at almost any point, but is there any point between now and the projected launch date, where you have a particularly critical test or something where you may discover some more problems and could put it off?

MR. YOUNG: I think the biggest milestone the program's got right now is the flight readiness firing. If we come through there super, I don't see anything that...

MR. CRIPPEN: The flight readiness firing is where we light off the three main engines in the orbiter itself while it's sitting out on the pad and that, I think everybody would agree, is probably the critical milestone that we've got to overcome and if that works probably, to the best of our knowledge right now, it should work properly. We've tested it out at the test facility we have in Mississippi and it's been working super.

MR. YOUNG: But that's just my judgment. They may... you can never... if anybody could think of what all's going to happen, they would already have fixed it. Now you never can think of these sneaky problems. That, to me, is the interesting part of the whole business. Boy, there's always something new that nobody ever thought of comes up, and people solve the problem and fix it in real time. Maybe it takes a little longer but, by golly, we've got the people to do it and they do it. It's mighty important.

MR. McLEAISH: Dan?

MR. MOLINA: Dan Molina from KPRC in Houston. What is it that's critical about the FRF? Just getting the engines ignited? Or having them fire for a specified amount of time? What is it that's critical about that?

MR. YOUNG: I'd say the whole process is critical because it's very close to launch. There'll be a ground launch sequencer that automatically controls the launch until it hands it over to onboard system. That'll be first test and checkout of that whole system end to end. Of course, you know handling cryogenic hydrogen and oxygen is very... you've got to be very careful and do your procedures just right. It's a good test.

MR. MOLINA: A couple of days... this is unrelated to that, but a couple of days ago, you got... the space program got a vote of confidence of sorts from the new Administration in the form of a statement that the budget wouldn't be cut back as it will be for some other programs, in the Reagan Administration's attempt to economize. From what you... from that and from other things, other signals that you've had so far, are you encouraged as regard to their attitude towards the program in general?

MR. YOUNG: I sure am. You know, the space program's one of the few budgets in the country that can get a big cut. It can be done every year. Most of those things... we holler about big budgets, but most of those things are on there by law and nobody can cut them unless the Congress passes a new law to cut them. The space program is not that way. Boy, they can take it off the top every time with the space program. If they didn't do that, man, you know that they really believe in the space program. So that's a good thing.

MR. PARRISH: Alton Parrish, Metro News. Have there been any new developments in the amenities in space... any new space

food that's different from the last manned flights?

MR. CRIPPEN: Actually the...

MR. YOUNG: You're the chef...

MR. CRIPPEN: The foods that we have are very similar to what we've flown in the previous flights. They've added, expanded the menu a little bit and generally done pretty good. Back in Skylab, the guys had a freezer on board so they could keep certain foods that would normally perish otherwise, but we do not have that. Maybe we will later on, but John and I would be satisfied on a flight this short to carry box lunches. But no, we're using regular space food and we've got things like, the military developed a capability to take a steak, for example, and radiate it such and package it basically in a sterile package and you can put it on the shelf for years and it keeps and we've got some of that or various different kinds of meats, and basically it's pretty good chow. That's what John and I have been eating for the last three days.

MR. YOUNG: You know they took this space food and developed it into meals for the aged, so now we're eating those meals for the aged and they're pretty good. Darn right. (laughter)

MR McLEIASH: Let's take one more question and then close it. Do we have any final questions? This gentleman...

Q: In view of all the training that you've had and all the questions you've been asked here, if you were asked to make that launch within the next week, would you be willing to take that risk?

MR. CRIPPEN: Absolutely. As far as I'm concerned, John and I are ready to go. He says we're 130 percent trained.

MR. YOUNG: By time of launch we'll be 140 percent trained. We're ready right now. And the whole system is ready here at the Johnson Space Center. We really had a lot of practice solving problems in real time and that's really our job and it's very exciting, I think, very interesting.

MR. McLEAISH: Thank you very much.

MR. CRIPPEN: We appreciate it.

-end-